

REMARKS

This application has been reviewed in light of the Office Action dated November 16, 2006. Claims 31 to 37 are presented for examination, of which Claims 31 and 34 are in independent form. Claims 31 and 34 have been amended to define still more clearly what Applicant regards as his invention. Reconsideration and further examination are respectfully requested.

Claims 31 to 37 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,930,722 (Nakamura et al.) in view of U.S. Patent No. 5,892,541 (Merrill). Reconsideration and withdrawal of this rejection are respectfully requested.

Turning to specific claim language, amended independent Claim 31 is directed to a method of driving a solid image pickup device having a photoelectric conversion unit, a charge-voltage conversion unit for converting electric charges from the photoelectric conversion unit into voltage signals, a signal amplification means for amplifying the voltage signals generated in the charge-voltage conversion unit, a charge transfer means for transferring photoelectric charges from the photoelectric conversion unit to the charge-voltage conversion unit, and a selecting means for reading out a signal amplified by the signal amplification means to a signal line. The method includes: (1) a first transferring step of transferring the electric charges of the photoelectric conversion unit to the charge-voltage conversion unit; (2) a first selecting step of reading out a first signal accumulated in one unit of an accumulation period to a signal line by the selecting means; (3) a reset step of resetting the charge-voltage conversion unit after the first signal is read out; (4) a second transferring step of transferring the electric charges of the photoelectric conversion unit to the charge-voltage conversion unit; (5) a second selecting

step of reading out a second signal accumulated in one unit of the accumulation period to the signal line by the selecting means, wherein the second signal is a signal remaining in the first transferring step; and (6) an adding step of adding the first signal and the second signal read out to the signal line.

Claim 34 is directed to a device substantially in accordance with the method of Claim 31.

The applied references, namely Nakamura and Merrill, either alone or in combination, are not seen to disclose or to suggest the features of independent Claims 31 and 34. In particular, Nakamura and Merrill, either alone or in combination, are not seen to disclose or to suggest at least the features of: (1) a first selecting step of reading out a first signal accumulated in one unit of an accumulation period to a signal line by the selecting means; (2) a second selecting step of reading out a second signal accumulated in one unit of the accumulation period to the signal line by the selecting means, wherein the second signal is a signal remaining in the first transferring step; and (3) an adding step of adding the first signal and the second signal read out to the signal line. (Claim 31).

Nakamura discloses an image pickup apparatus including an array of unit cells, each unit cell having a light receiving device for receiving light and generating an electric charge corresponding to the light, a charge accumulating section for accumulating the electric charge generated by the light receiving device, a transfer device for transferring the electric charge from the light receiving device to the charge accumulating section, and a charge limiting device for limiting the electric charge in the charge accumulating section. The image pickup device also includes vertical signal lines for receiving electric data corresponding to the electric charge

accumulated in the charge accumulating section of its corresponding unit cell and a control circuit. Nakamura discusses that the control circuit causes the charge limiting device to limit the charge generated by the light receiving device during a first accumulation period and transferred to the charge accumulating section through the transfer device and, to add, to the electric charge accumulated in the charge accumulating section, the charge generated by the light receiving device during a second accumulation period following the first accumulation period and transferred to the charge accumulating section through the transfer device.

Nakamura discloses that after transferring all electric charges during a first accumulation period, new electric charges are transferred again during a second period following the first accumulation period. Moreover, Nakamura discloses that a reset is performed after electric charges are present in the charge accumulation section, but before reading out a signal to a signal line. Nakamura therefore fails to disclose or suggest at least the features of: (1) a first selecting step of reading out a first signal accumulated in one unit of an accumulation period to a signal line by the selecting means; (2) a second selecting step of reading out a second signal accumulated in one unit of the accumulation period to the signal line by the selecting means, wherein the second signal is a signal remaining in the first transferring step; and (3) an adding step of adding the first signal and the second signal read out to the signal line.

Nothing in Merrill is seen to cure these deficiencies in Nakamura. Merrill discloses an imaging system including an array of pixel sensor cells for receiving light and generating an electric signal corresponding to the light. The imaging system also includes cell output lines for receiving photon values corresponding to the number of photons collected by a cell. Merrill discloses that the imaging system successively reads out signals in different

exposure periods, and resets a cell after reading a signal. Moreover, Merrill does not disclose transferring a charge from a light receiving device to a charge accumulating section through a transfer device.

Therefore, the applied references, namely Nakamura and Merrill, either alone or in combination, are not seen to disclose or to suggest all of the features of independent Claims 31 and 34.

In light of the deficiencies of Nakamura and Merrill as discussed above, Applicant submits that amended independent Claims 31 and 34 are now in condition for allowance and respectfully requests same.

The other pending claims in this application are each dependent from the independent claims discussed above and are therefore believed allowable for at least the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

In view of the foregoing amendment and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney may be reached in our Costa Mesa, CA office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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